CLAIMS

1. A lithium ion secondary battery including an electrode group that comprises:

(1) a winding core,

(2) a positive electrode comprising a positive electrode core member and a positive electrode active material layer carried on said positive electrode core member,

(3) a negative electrode comprising a negative electrode core member and a negative electrode active material layer carried on said negative electrode core member, and

(4) a porous film formed on at least one of said positive electrode and said negative electrode,

wherein said porous film comprises a filler and a binder,

said positive electrode and said negative electrode are wound around said winding core, and

said positive electrode and/or said negative electrode have/has, on the initial winding side, a region where said active material layer is carried on neither side of said core member and an adjoining region where said active material layer is carried on only one side of said core member.

2. The lithium ion secondary battery in

accordance with claim 1, wherein a separator is disposed between said positive electrode and said negative electrode.

3. The lithium ion secondary battery in accordance with claim 1, wherein a lead is provided in the region of said positive electrode or said negative electrode where the active material layer is carried on neither side of said core member.

4. The lithium ion secondary battery in accordance with claim 1, wherein on the initial winding side said winding core has a recess at a position where it comes into contact with the starting position of the active material layer of said positive electrode or said negative electrode, and said recess corresponds to at least a part of the thickness of said positive electrode or said negative electrode.

5. A method for producing a lithium ion secondary battery, comprising the steps of:

(a) forming a positive electrode active material layer on both sides of a positive electrode core member, to obtain a positive electrode,

(b) forming a negative electrode active material layer on both sides of a negative electrode core member, to obtain a negative electrode,

(c) forming a porous film that comprises a filler and a binder on a surface of said positive electrode and/or said negative electrode, and

(d) winding said positive electrode and said negative electrode around a winding core, to obtain an electrode group,

wherein said step (a) and/or said step (b) comprise/comprises the step of providing, on the initial winding side of said positive electrode and/or said negative electrode, a region where said active material layer is carried on neither side of said core member and an adjoining region where said active material layer is carried on only one side of said core member.

6. The method for producing a lithium ion secondary battery in accordance with claim 5, wherein said positive electrode and said negative electrode are wound around said winding core with a separator interposed therebetween in said step (d).

7. The method for producing a lithium ion secondary battery in accordance with claim 5, further comprising the step of welding a lead to said region of said positive electrode or said negative electrode where the active material layer is carried on neither side of said core member.

8. The method for producing a lithium ion secondary battery in accordance with claim 5, further comprising the step of, on the initial winding side, providing said winding core with a recess at a position where it comes into contact with the starting position of

the active material layer of said positive electrode or said negative electrode, said recess corresponding to at least a part of the thickness of said positive electrode or said negative electrode.